

# IOWA STATE UNIVERSITY

## Digital Repository

---

Integrated Crop Management News

Extension and Experiment Station Publications

---

6-29-2018

## Weather Conditions Ripe for Physoderma Brown Spot and Node Rot and Gray Leaf Spot

Ethan Stoetzer

*Iowa State University*, [stoetzer@iastate.edu](mailto:stoetzer@iastate.edu)

Alison E. Robertson

*Iowa State University*, [alisonr@iastate.edu](mailto:alisonr@iastate.edu)

Follow this and additional works at: <https://lib.dr.iastate.edu/cropnews>



Part of the [Agricultural Science Commons](#), and the [Agriculture Commons](#)

---

### Recommended Citation

Stoetzer, Ethan and Robertson, Alison E., "Weather Conditions Ripe for Physoderma Brown Spot and Node Rot and Gray Leaf Spot" (2018). *Integrated Crop Management News*. 2488.

<https://lib.dr.iastate.edu/cropnews/2488>

**The Iowa State University Digital Repository provides access to Integrated Crop Management News for historical purposes only. Users are hereby notified that the content may be inaccurate, out of date, incomplete and/or may not meet the needs and requirements of the user. Users should make their own assessment of the information and whether it is suitable for their intended purpose. For current information on integrated crop management from Iowa State University Extension and Outreach, please visit <https://crops.extension.iastate.edu/>.**

---

# Weather Conditions Ripe for Physoderma Brown Spot and Node Rot and Gray Leaf Spot

## **Abstract**

With most corn in Iowa at the V7-V12 range, it's important to be aware of potential corn diseases at this particular time. Given the wet growing conditions over the last month, corn in parts of Iowa will be very susceptible to Physoderma brown spot and node rot, caused by the fungus *Physoderma maydis*, and gray leaf spot, caused by the fungus *Cercospora zea-maydis*.

## **Disciplines**

Agricultural Science | Agriculture

# IOWA STATE UNIVERSITY

## Extension and Outreach

Integrated Crop Management

# Weather Conditions Ripe for Physoderma Brown Spot and Node Rot and Gray Leaf Spot

June 29, 2018

---

With most corn in Iowa at the V7-V12 range, it's important to be aware of potential corn diseases at this particular time. Given the wet growing conditions over the last month, corn in parts of Iowa will be very susceptible to Physoderma brown spot and node rot, caused by the fungus *Physoderma maydis*, and gray leaf spot, caused by the fungus *Cercospora zeae-maydis*.

## Physoderma brown spot

Physoderma brown spot and node rot risk increases when warm (75-85 degrees Fahrenheit) and excessively wet conditions result in water pooling in the whorl and occurs during the early vegetative stages (V3-V9) of corn growth. The causal fungus produces zoospores, that swim through water in the whorl and infect the meristematic tissue. Given the recent large amounts of rain, coupled with the warm temperatures, it is likely that Physoderma brown spot and node rot may be observed in some fields.

## Symptoms

Physoderma brown spot symptoms include very small (approximately 1/4" in diameter) round-to-oval lesions that are yellowish-brown in color and occur in high numbers and in broad bands across the leaves. In addition, dark-purple to black spots occur on the midrib. These midrib lesions help to distinguish this particular disease from other diseases such as eyespot and southern rust. Because infection requires a combination of light, free water and warm temperatures, alternating bands of infected and non-infected tissues commonly develop on the plant. Symptoms may also appear on the stalk, leaf sheath and husk.



**A more severe case of browning along the midrib.** *Photo by Brandon Kleinke*



**Middle stages of Physoderma brown spot. Take note of the spots developing in bands across the leaf, as well as the developing brown**

**markings along the mid rib.** *Photo by Adam Sisson*

Physoderma node rot symptoms are recognized as snapping of the corn stalk at one of the lower nodes (usually 6<sup>th</sup>, 7<sup>th</sup> or 8<sup>th</sup>) during the mid-reproductive stages (R3-R5). The node is often rotted, but the pith is not. Orange sporangia of *P. maydis* may be easily rubbed off the rotted node or leaf sheath attached to the rotted node.

Younger plants are more susceptible to this disease and become more resistant with age. The causal fungus overwinters in infected host tissue or infested soil for several years.

## Management

The best time to scout for Physoderma brown spot is during the V12 through R1 stages of growth, and R3-R5 for Physoderma node rot. The disease may be more prevalent in fields with infested corn residue or those with a history of the disease. Hybrid susceptibility to Physoderma brown spot and node rot varies.

There are no in-season management options for Physoderma brown spot and node rot. Although some fungicides are labeled for Physoderma brown spot, field trials at Iowa State University have not shown a reduction in disease or yield protection.

## Gray Leaf Spot

Warm temperatures (75-85 F) and relative humidity greater than 90 percent favor gray leaf spot development. Symptoms of the disease are most likely to appear following long periods of heavy dew and overcast conditions, and in bottomlands and fields adjacent to woods where humidity can be very high. In Iowa, we typically see gray leaf spot start to develop around tasseling. Because of weather conditions this growing season, however, it is likely that gray leaf spot may start to develop prior to VT.

Gray leaf spot can be more severe when corn follows corn in the same field, and in reduced or no-till systems. The fungus survives in corn residue and spores are spread by wind and splashing rain. Hybrid susceptibility and weather conditions strongly influence disease development. This means that gray leaf spot can be locally severe but not cause widespread damage throughout a region. For corn that was planted late, there is usually an increased risk for disease that could result in higher levels of infection and potential yield loss.



**A corn leaf with gray leaf spot developing. Take note of the gray, rectangular lesions across the band of the leaf.** *Photo by Alison Robertson*

## Symptoms

Gray leaf spot lesions begin as small, oval or jagged light-tan spots that expand to become long, narrow and rectangular. The lesions are always confined by and expand parallel to the leaf veins. Later infections may turn gray. Depending on the hybrid, the lesions may be surrounded by yellow or orange halos. Gray leaf spot always begins in the lower canopy and progresses up the canopy. Yield loss will depend on disease severity, and much of the upper plant canopy is affected.

## Management

Management of gray leaf spot begins with selection of resistant hybrids for fields where the disease commonly occurs. Inoculum levels may be reduced through rotating crops and reducing surface residue through residue management. Fungicides are usually effective at managing the disease. Time of application is important, and applications made in the very early stages of disease development (few lesions in the lower canopy) are more effective at slowing disease development and protecting yield.

*Links to this article are strongly encouraged, and this article may be republished without further permission if published as written and if credit is given to the author, Integrated Crop Management News, and Iowa State University Extension and Outreach. If this article is to be used in any other manner, permission from the author is required. This article was originally published on June 29, 2018. The information contained within may not be the most current and accurate depending on when it is accessed.*

**Category:** Plant Diseases

**Crop:**

Corn

**Tags:** physoderma brown spot Physoderma stalk rot gray leaf spot Corn diseases Corn crop scouting

**Authors:**



Ethan Stoetzer Communications Specialist II



Alison Robertson Professor of Plant Pathology and Microbiology

Dr. Alison Robertson is an associate professor of plant pathology and microbiology. She provides extension education on the diagnosis and management of corn and soybean diseases. Her research interests include Pythium seedling disease of corn and soybean and Goss's wilt. Dr. Robertson receiv...